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EXAMINER	
MATTIS, JASON E	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/833,864	FONG ET AL.	
	Examiner	Art Unit	
	Jason E Mattis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to Applicants' amendment filed on 10/19/04. Claims 1-20 are currently pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8, 11-12, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Padovani et al. (U.S. Application 10/318489).

With respect to claim 8, Padovani et al. discloses a method of managing the contents of a plurality of data buffers in a wireless communication system to service forward link data transmission for a mobile station **(See the abstract of Padovani et al. for reference to a method of controlling the forward link transmission of high speed data in a wireless communications network, and since the wireless communications network contains data buffers and queues, the method is also directed towards managing the buffers and queues)**. Padovani et al. also discloses

receiving data in a central buffer, selector element 14, of a network element, base station controller 10, of the wireless communications system element, wherein the network element manages a plurality of base stations 4 of the wireless communications system **(See page 5 paragraphs 53-54 and items 4, 10, and 14 in Figure 2 of Padovani et al. for reference to a base station controller 10 including a selector element 14, which acts as a central buffer by receiving data destined for multiple base stations 4 from packet network interface 24, and for reference to the base station controller 10 and selector 14 controlling communications between one or more base stations 4)**. Padovani et al. further discloses downloading a plurality of blocks of data from the central buffer to each of a plurality of distributed buffers resident in a respect plurality of base stations forming an active set of base stations servicing the mobile station **(See page 8 paragraph 82 and Figure 2 of Padovani et al. for reference to each selector element 14 assigned to control the communication with mobile station 6 forwarding data to all base stations 4 in the active set of mobile station 6 and for reference to base stations 4 containing a data queue 40, where the data to be transmitted to the mobile station 6 is stored)**. Padovani et al. also discloses transmitting blocks of data from a serving base station of the active set of base stations to the mobile station **(See page 8 paragraph 83 and Figure 2 of Padovani et al. for reference to the selected, or serving, base station 4 transmitting data to mobile station 6)**. Padovani et al. further discloses determining that distributed buffer refresh is required and downloading a next plurality of blocks of data from the central buffer to each of the plurality of distributed buffers resident in the

active set of base station servicing the mobile station **(See pages 8-9 paragraphs 82-86 of Padovani et al. for reference to the active base station 4 transmitting a message to the selector element 14 of the base station controller requesting the next set of data and for reference to the data being sent from selector element 14 to each of the active base stations 4)**.

With respect to claim 18, Padovani et al. discloses a base station controller 10 **(See page 5 paragraph 53 and item 10 of Figure 2 for reference to base station controller 10)**. Padovani et al. also discloses a packet data serving node interface, packet network interface 24 **(See page 5 paragraph 54 and items 14 and 24 in Figure 2 of Padovani et al. for reference to selector element 14 of the base station controller 10 interfacing with a packet network interface 24, which is a packet data serving node)**. Padovani et al. further discloses at least one base station interface, selector element 14, that interfaces the base station controller to a plurality of base stations 4 **(See page 5 paragraph 55 and items 4 and 14 in Figure 2 of Padovani et al. for reference to selector element 14 of base station controller 10 interfacing and controlling communications between one or more base stations 4)**. Padovani et al. also discloses at least one digital processor, call control processor 16, coupled to the at least one base station interface that executes software instructions **(See page 5 paragraph 53 and items 14 and 16 of Padovani et al. for reference to a call control processor coupled to selector element 14 that executes call processing using software instructions)**. Padovani et al. further discloses determining an active set of base stations for servicing a mobile station 6 and

downloading a plurality of blocks of data to each base station of the active set of base stations wherein each block of data of the plurality of blocks of data includes a respective sequence number and wherein the first block of data includes an initial sequence number **(See Page 8 paragraph 82, Page 4 paragraph 47, and Figure 2 of Padovani et al. for reference to each selector element 14 assigned to control the communication with mobile station 6 forwarding data to all base stations 4 in the active set of mobile station 6, meaning that the active set of base stations has been determined, and for reference to each data unit having a sequence number with the first data unit containing an initial sequence number)**. Padovani et al. also discloses receiving an indication from a serving base station of the active set of base stations that a data refresh is required and downloading a next plurality of blocks of data to each base station of the active set of base stations **(See pages 8-9 paragraphs 82-86 of Padovani et al. for reference to the active base station 4 transmitting a message to the selector element 14 of the base station controller requesting the next set of data and for reference to the data being sent from selector element 14 to each of the active base stations 4)**.

With respect to claims 11 and 19, Padovani et al. discloses that only one base station of the active set of base stations services forward link transmissions to the mobile station at any particular time **(See page 8 paragraph 83 of Padovani et al. for reference to only the selected base station 4 transmitting data to the mobile station 6 at the next available time slots)**.

With respect to claim 12, Padovani et al. discloses that the network element is a base station controller **(See page 5 paragraph 53 and item 10 in Figure 2 of Padovani et al. for reference to the network element being a base station controller 10)**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Padovani et al. in view of Farley et al. (U.S. Patent 6553032).

With respect to claim 1, Padovani et al. discloses a method for operating a wireless communication system to service high speed data rate forward link transmission for a mobile station 4 **(See the abstract of Padovani et al. for reference to a method of controlling forward link high speed data rate communications to a mobile station 4)**. Padovani et al. also discloses determining an active set of base stations 4 and for each of the active set of base stations, downloading a plurality of blocks of data from a central buffer, selector element 14, wherein each block of data includes a respective sequence number with a first block of data including an initial sequence number **(See Page 8 paragraph 82, Page 4 paragraph 47, and Figure 2 of**

Padovani et al. for reference to each selector element 14 assigned to control the communication with mobile station 6 forwarding data to all base stations 4 in the active set of mobile station 6, meaning that the active set of base stations has been determined, and for reference to each data unit having a sequence number with the first data unit containing an initial sequence number). Padovani et al. further discloses transmitting blocks of data from a serving base station of the active set of base stations to the mobile station **(See page 8 paragraph 83 and Figure 2 of Padovani et al. for reference to the selected, or serving, base station 4 transmitting data to mobile station 6)**. Padovani et al. does not explicitly disclose receiving a sequence number from the mobile station for each block of data successfully received by the mobile station and when the sequence number of a block of data successfully received by the mobile station exceeds an initial sequence number by a threshold value, downloading a next plurality of blocks of data from a central buffer to each base station of the active set of base stations. However, Padovani et al. does disclose that the system and method may include the use of an ACK, or acknowledgment, protocol within the scope of the invention **(See page 19 paragraph 193 of Padovani et al. for reference to the use of an ACK protocol)**.

With respect to claim 13, Padovani et al. discloses a method of managing the contents of a plurality of data buffers in a wireless communication system to service forward link data transmissions for a mobile station 6 **(See the abstract of Padovani et al. for reference to a method of controlling the forward link transmission of high speed data in a wireless communications network, and since the wireless**

communications network contains data buffers and queues, the method is also directed towards managing the buffers and queues). Padovani et al. also discloses receiving data in a central buffer, selector element 14, of a network element, base station controller 10, of the wireless communication system, wherein the network element services a plurality of base stations 4 of the wireless communication system **(See page 5 paragraphs 53-54 and items 4, 10, and 14 in Figure 2 of Padovani et al. for reference to a base station controller 10 including a selector element 14, which acts as a central buffer by receiving data destined for multiple base stations 4 from packet network interface 24, and for reference to the base station controller 10 and selector 14 controlling communications between one or more base stations 4)**. Padovani et al. further discloses downloading a plurality of blocks of data from the central buffer to each of a plurality of distributed buffers resident in a respect plurality of base stations that defines an active set of base stations servicing the mobile station wherein each block of the plurality of blocks of data includes a respective sequence number, and wherein a first block of data of the plurality of blocks of data includes an initial sequence number **(See Page 8 paragraph 82, Page 4 paragraph 47, and Figure 2 of Padovani et al. for reference to each selector element 14 assigned to control the communication with mobile station 6 forwarding data to all base stations 4 in the active set of mobile station 6, and for reference to each data unit having a sequence number with the first data unit containing an initial sequence number)**. Padovani et al. also discloses transmitting blocks from a serving base station of the active set of base stations to the mobile station **(See page 8 paragraph 83 and**

Figure 2 of Padovani et al. for reference to the selected, or serving, base station 4 transmitting data to mobile station 6). Padovani et al. does not explicitly disclose for each block of data successfully received by the mobile station, receiving confirmation from the mobile station that includes a sequence number of the successfully received block of data, and when the sequence number of a block of data successfully received by the mobile station exceeds the initial sequence number by a threshold value, downloading a next plurality of blocks of data from a central buffer to each of the plurality of distributed buffers resident in the plurality of base stations that define the active set of base station servicing the mobile base station. However, Padovani et al. does disclose that the system and method may include the use of an ACK, or acknowledgment, protocol within the scope of the invention **(See page 19 paragraph 193 of Padovani et al. for reference to the use of an ACK protocol)**.

With respect to claims 1 and 13, Farley et al., in the field of communications, discloses using sliding window protocol in a wireless communications system **(See column 2 lines 27-39 of Farley et al. for reference to sliding window protocol)**. Farley et al. also discloses that in sliding window protocol, mobile units send acknowledgements specifying sequence numbers to sending units to acknowledge each packet sent **(See column 2 lines 27-48 of Farley et al. for reference to sending acknowledgements specifying sequence numbers of received packets)**. Farley et al. further discloses that when an acknowledgment received by the sending unit specifies a packet sequence number above a threshold, which is related to a sliding window, the sliding window is moved and the next data packet is downloaded to the

mobile unit **(See column 2 lines 27-48 of Farley et al. for reference to this process)**. Using sliding window protocol has the advantage of creating a way to keep a transmission buffer full while only sending an amount of data that a mobile unit can handle.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Farley et al., to combine the use of sliding window protocol, as suggested by Farley et al., with the system and method of base station buffer management disclosed by Padovani et al., with the motivation being to create a way to keep the base station transmission buffers full with current data while only sending an amount of data that a mobile unit can handle.

With respect to claims 2 and 14, Padovani et al. discloses that the central buffer is serviced by a base station controller 10 that services the plurality of base stations **(See page 5 paragraph 53 and item 10 in Figure 2 of Padovani et al. for reference to the selector element being a part of the base station controller 10 serving a plurality of base stations 4)**.

With respect to claims 3 and 15, Padovani et al. discloses the that the central buffer is serviced by a services gateway switching node, packet network interface 24, that services a plurality of base stations **(See page 5 paragraph 54 and items 14 and 24 in Figure 2 of Padovani et al. for reference to selector element 14 being serviced by a packet network interface 24, which is a switching node that sends data from the data source to the selector element 14, which services a plurality of base stations 4)**.

With respect to claims 4 and 16, Padovani et al. discloses that only one base station of the active set of base stations services forward link transmissions to the mobile station at any particular time **(See page 8 paragraph 83 of Padovani et al. for reference to only the selected base station 4 transmitting data to the mobile station 6 at the next available time slots)**.

With respect to claims 5 and 17, Padovani et al. does not explicitly disclose that the mobile station reports the sequence number of a successfully received data to the serving base station, and that the sequence number of a block of data successfully received by the mobile station is determined to exceed the initial sequence number by a threshold value by the serving base station. However, Padovani et al. does disclose that the system and method may include the use of an ACK, or acknowledgment, protocol within the scope of the invention **(See page 19 paragraph 193 of Padovani et al. for reference to the use of an ACK protocol)**.

With respect to claims 5 and 17, Farley et al., in the field of communications, discloses using sliding window protocol in a wireless communications system **(See column 2 lines 27-39 of Farley et al. for reference to sliding window protocol)**. Farley et al. also discloses that in sliding window protocol, mobile units send acknowledgements specifying sequence numbers to sending units to acknowledge each packet sent with an initial data packet having an initial sequence number **(See column 2 lines 27-48 of Farley et al. for reference to sending acknowledgements specifying sequence numbers of received packets)**. Farley et al. further discloses that when an acknowledgment received by the sending unit specifies a packet

sequence number above a threshold, beyond the initial sequence number, which is related to a sliding window, the sliding window is moved and the next data packet is downloaded to the mobile unit **(See column 2 lines 27-48 of Farley et al. for reference to this process)**. Using sliding window protocol has the advantage of creating a way to keep a transmission buffer full while only sending an amount of data that a mobile unit can handle.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Farley et al., to combine the use of sliding window protocol, as suggested by Farley et al., with the system and method of base station buffer management disclosed by Padovani et al., with the motivation being to create a way to keep the base station transmission buffers full with current data while only sending an amount of data that a mobile unit can handle

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Padovani et al. in view of Farley et al. as applied to claims 1-5 and 13-17 above, and further in view of Strawczynski et al. (U.S Application 09/835102).

With respect to claims 6 and 7, the combination of Padovani et al. and Farley et al. does not disclose the system supporting the 1xEV-DO standard or the High Speed Downlink Packet Access standard.

Strawczynski et al., in the field of communications, discloses a wireless communications system compatible with the 1xEV-DO standard and the HSDPA standard **(See page 1 paragraph 12 of Strawczynski et al. for reference to wireless**

systems using both the 1xEV-DO standard and the HSDPA standard). Using the 1xEV-DO standard and the HSDPA standard has the advantage of using currently developed high-speed data rate standards without having to create a new standard.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Strawczynski et al., to combine the use of the 1xEV-DO standard and the use of the HSDPA standard, as suggested by Strawczynski et al., with the forward link data transmission system and method of Padovani et al. and Farley et al., with the motivation being to use currently developed high-speed data rate standards without having to create a new standard.

7. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Padovani et al. in view of Kumar et al. (U.S. Pat. 6507572).

With respect to claims 9 and 10, Padovani et al. does not disclose the central buffer supports centralized link layer buffering operations and that the plurality of distributed buffers support distributed link layer buffering operations and the central buffer and the plurality of distributed buffers support the radio link protocol.

Kumar et al., in the field of communications, discloses a wireless communications system with a central buffer, a queue of the frame selection/distribution function 106, and a plurality of distributed buffers, queues of the base stations 110, that support radio link protocol **(See column 1 lines 22-58 and items 104, 106, and 110 in Figure 1 of Kumar et al. for reference to the wireless communication system supporting a radio link protocol function 104)**. Since the system of Kumar et al.

supports radio link protocol, which is a link layer protocol, the central buffer, queue of the frame selection/distribution function 106, and distributed buffers, queues of the base stations 110, both support link layer buffering operations. Using radio link protocol and link layer buffering has the advantage of providing a reliable existing way to control the transmission of data from the central buffer to the distributed buffers.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Kumar et al., to combine the use of radio link protocol and link layer buffering, as suggested by Kumar et al., with the forward link data transmission system and method of Padovani et al., with the motivation being to provide a reliable existing way to control the transmission of data from the central buffer to the distributed buffers.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Padovani et al. in view of Strawczynski et al.

With respect to claim 20, Padovani et al. does not disclose that the base station controller supports the 1xEV-DO standard.

Strawczynski et al., in the field of communications, discloses a wireless communications system compatible with the 1xEV-DO standard **(See page 1 paragraph 12 of Strawczynski et al. for reference to wireless systems using the 1xEV-DO standard)**. Using the 1xEV-DO standard has the advantage of using a currently developed high-speed data rate standard without having to create a new standard.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Strawczynski et al., to combine the use of the 1xEV-DO standard, as suggested by Strawczynski et al., with the forward link data transmission system and method of Padovani et al., with the motivation being to use a currently developed high-speed data rate standard without having to create a new standard.

Response to Arguments

9. Applicants' arguments filed 10/19/04 have been fully considered but they are not persuasive.

With respect to Applicants' argument that:

> "Padovani does not teach, disclose, or suggest a central buffer as required by claim 8. The data source 20 is located external to the base station controller 10 of FIG. 2 of Padovani. The selector element 14 of the base station controller 10 of FIG. 2 of Padovani simply forwards data received from data source 20 to the plurality of base stations 4 in the active set of the mobile station. (Padovani at page 8, paragraph 8, lines 1-4). The selector element 14 of Padovani does not buffer data. Thus, the limitations of claim 8 relating to the "central" buffer and the "plurality of distributed buffers" are not taught, disclosed, or suggested by Padovani." (See page 10 of Applicants' Remarks)

the Examiner respectfully disagrees. The selector element 14 of Padovani et al. receives data from data source 20 through packet network interface 24. The selector element 14 then forwards data to the plurality of base stations 4 in the active set of the mobile station. In the process of sending data from the data source through the packet network interface to the selector element 14, the selector element 14 includes a means to receive and store the data before it then forwards the data to the plurality of base stations 4. This means of receiving and storing data, before the data can be forwarded to the base stations, performs the function the claimed "central buffer". Therefore, the selector element 14 of Padovani et al. is a "central buffer" that sends data to the data queues 40, which are "a plurality of distributed buffers", of the base stations 4.

With respect to Applicants' argument that:

> "Padovani, fails to teach, disclose, or suggest "determining that distributed buffer refresh is required" and "downloading a next plurality of data from the central buffer to each of the plurality of distributed buffers resident in the active set of base stations servicing the mobile station" as is required by claim 8. Padovani fails to address such operations and thus fails to meet all the limitations of claim 8." (See page 11 of Applicants' Remarks)

the Examiner respectfully disagrees. Padovani et al. discloses using a system whereby packets received by a mobile station 6 are either positively or negatively acknowledged in messages sent of a reverse link to the base station 4 (See page 19 paragraphs 191-193 of Padovani et al. for reference to acknowledgment messages). Padovani et al. also discloses using these acknowledgement messages to determine the next

appropriate data packets that need to be sent to the mobile station 6 (See page 8 paragraph 84 for reference to the base station 4 demodulating and forwarding acknowledgement messages to the selector element 14, which then processes the acknowledgement messages and determines the next appropriate set of data packets that needs to be downloaded into the data queues 40 of the active set of base stations 4). Therefore, by using the acknowledgement messages, the method of Padovani et al. determines that the data queues 40 of the base stations 4 need to be refreshed and then downloads the next appropriate set of data packets to the data queues of the base stations 4 servicing the mobile station 6.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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